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EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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THE VICTORIA VETERINARY BENEVOLENT FUND.

Last week we published an account of the annual general meeting of this Fund, which concluded with a personal appeal from the Secretary, Mr. Shipley, for a continuance and increase of subscriptions. We are all familiar with Mr. Shipley's activity as a special pleader on behalf of this particular object; and it is good to hear that, largely as a result of his efforts, the Fund is making "slow and steady progress." It certainly now receives more general support from the profession than was the case a few years ago, but it ought to receive much more still.

Our profession is a small and a poor one. But, after all, there are only a very few objects which should permanently demand a subscription from every working practitioner. One is mutual defence; and this is well provided for by the "Manchester Society," which also devotes a portion of its funds to benevolence. Every member should join this for his own protection; and in so doing he will incidentally give a little support to benevolence. But the Victoria Fund exists solely for benevolence—for the assistance of members incapacitated by age or illness, and of their dependents. Some practitioners can feel quite secure against ever requiring such assistance for themselves or their families; and this means that they are in a position to afford some help to others who are less fortunate. The majority, perhaps, are not so absolutely sure that the future holds no financial trouble in store for them; and these may well spare a few shillings at least every year to a fund which may one day form their own last resource in trouble. A small subscription every year from every member would soon place the Fund in a position to do better work than it has ever been able to accomplish yet.

All such funds are much more effectively supported by a wide measure of popular interest—a steady flow of small subscriptions—than by occasional large donations. Comparatively speaking, there is a good deal of distress existing within the profession, and we have not many rich men to relieve it by large gifts to our benevolent fund. But there is more than enough money in the profession to relieve it all if every member would bear a little share in the burden. Half-a-guinea a year is less than threepence a week—all of us, surely, could afford so much, and most of us spend more upon objects which are not really necessary. And an average sum of half-a-guinea annually from every member, if it came regularly, would probably amply suffice for all the requirements of the Victoria Benevolent Fund.

FINANCES OF THE R.C.V.S.

It has been assumed, in some recent correspondence that the income under the new Bill will be £3,440 per annum. But the fact has been overlooked that Members practising abroad, who cannot in the nature of things be helped very much by the R.C.V.S., are exempted in the Bill from payment, as also are holders of the Highland Society's Diploma, and all members who have retired from practice. I think that the figure 800 is not too high to cover these three classes of exempted members.

Again it must be remembered that though 3,441 is the official figure of the number of men on the register, yet this is in excess of the men who can be found. A list of 25 members is given in the present register whose names are to be removed, and a like number ought to be reckoned for similar defections since the printing of the Register. We cannot therefore count on more than 3,400 members at the very outside.

Deduct the 800 mentioned above, and you have 2,600 as the number of members who can be called upon to pay a guinea. *If they all pay*, that will mean a *gross* income of £2,730.

Every councilman knows that the work of the Council has been crippled for want of funds. Many things have had to be left undone, and in spite of all sorts of economies, £465 was spent last year in excess of the income. Deduct this, and you have £2,265 as the sum left to the Council for the proper carrying out of its duties under the Acts and Charters and for the necessary development of the work of Veterinary Medicine and Surgery in the United Kingdom. Who will say that it is too much?

The Examinations are bound to cost more and more every year as progress is made; the work of the Registration Committee, if it is to be really effective, will require a good deal of money; the Parliamentary Committee could easily and legitimately spend fifty times the money it has ever had to work with. The office expenses in connection with the collection of the guineas also need to be taken into account.

The Library and Museum in their present condition are a disgrace. Next year the headquarters of the profession will be visited by Veterinary Surgeons from all over the world, who will be interested to see how the Faculty of Veterinary Medicine and Surgery is housed in this rich capital of the greatest empire of the world. In the Library they will find that you can get veterinary periodicals published in France, Germany, Italy, etc., up to 1892, but not after! The Librarian will have to

explain that the College has never been able to buy books for the library, but has depended on the generosity of a few men. When the Fleming Collection was given twenty years ago it was up to date in European periodicals. Now it is twenty years out of date! And what applies to periodicals applies also to other veterinary literature.

In the Museum they will find that, apart from the priceless skeletons of Eclipse, and a valuable exhibit of dentition, there is nothing worth calling a museum!

Is it too much to say that the profession itself will be judged to some extent by the impression created by a visit to its headquarters?

Those two institutions—library and museum—by the judicious expenditure of money, could be made of infinite value to the profession, both practically and in the way of raising its prestige. Veterinary Surgeons complain that they are not treated with that respect which is their right. The public judges in these days by the show you make. If you had a building with a library and museum anything like those of the Royal College of Surgeons, you would be credited with being a profession of some importance. The profession may not advertise as individuals, but they may pay their guineas a year, and then see that the Council they elect *advertises for them*, in the legitimate ways alluded to. And £2000 a year is a very small sum for such a purpose. It will be the very best investment the profession has ever made!

JUVENCUS.

ABSTRACTS FROM FOREIGN JOURNALS.

THE TREATMENT OF IMPACTION OF THE OMASUM.

Bisauge (*Revue Gén. de Méd. Vét.*) discusses this condition, He says that it is a common affection, difficult to treat, and most frequently caused by an interruption of motor function in the nerve-endings in the wall of the omasum, in consequence of an auto-intoxication of gastro-intestinal origin. It is therefore very often encountered as a complication of troubles of the rumen. Recovery scarcely ever occurs naturally, and can only be brought about by a rational methodical treatment continued for a considerable time.

This treatment is directed towards several objects, which may be stated as follows;

(1) Irrigation of the alimentary masses accumulated between the leaves of the omasum.

(2) Stimulation of the contractility of the organ.

(3) Treatment of symptoms of auto-intoxication.

To irrigate the masses of food, warm mucilaginous fluids such as decoction of linseed, or barley water, are given in copious quantities, by force if necessary. After an irrigation of from two to three days the author begins to stimulate the contractility of the walls of the omasum with warm aromatic infusions (such as infusions of camomile), to which some alcohol or, still better, hydrochloric acid (in the proportion of 20 to 40 minims to 1¾ pints of the infusion) is added. In cases of pronounced atony, powdered nux vomica (45 grains to ʒj. in the day) is given. Copious cold clysters are given to encourage the expulsion of accumulated fæces and to stimulate the digestive tube.

Most of the purgatives which were formerly so often used, such as Glauber's salts, castor oil, rhubarb, bryony, etc., should be avoided. In their place the author gives only barium chloride, of which 15 to 20 grammes (3¾ to 4 drachms) are made up in electuary form, and given in three doses during the day. A copious evacuation of fæces is almost certain to follow a few hours after the last dose.

To induce rumination to recommence, the author gives 5 to 10 grammes (1¼ to 2½ drachms) of powdered ipecacuanha in a warm aromatic infusion.

The best stimulants of the contractility of the omasum are the alkaloids eserin, veratrin, pilocarpin, or arecolin, injected subcutaneously in very weak doses, but several times during the day. The strength should be maintained as far as possible by nutrient fluids; and, during convalescence, the diet needs careful supervision.

When auto-intoxication is evident, the author injects citrate of caffeine, arsenate of strychnine, or hydrogen peroxide. In severe cases a washing out of the blood with an intravenous injection of from 3½ to 7 pints of normal saline solution is indicated. —(*Berliner Tier. Woch.*)

THE ACTION OF MALLEIN IN CASES OF PERSISTENT NON-SPECIFIC NASAL DISCHARGE.

Isnard (*Revue Vét. Militaire*) without being able to give a scientific explanation of it, calls attention to a new and very noteworthy property of mallein. He has subjected numerous horses, which had persistent nasal discharge with uncharacteristic lesions of the upper air passages, to the mallein test. None reacted; but after a few days a visible diminution was noticed in the nasal discharge, and soon afterwards its complete disappearance followed. This did not arise from a simple coincidence of favourable circumstances; for in all cases, even the most obstinate ones which had withstood the usual remedial measures, the same favourable result was observed.

Often a second injection was necessary; and in such cases this was given about a month after the first. This second injection was regularly followed by complete recovery. The nasal discharge has never reappeared in the horses which Isnard treated.

It is difficult to explain why mallein, a sterile extract of glanders bacilli, is effective against a non-specific nasal discharge. At present the author simply brings forward the problem, and awaits the solution.—(*Berliner Tier. Woch.*)

THEILER'S TREATMENT OF BOVINE REDWATER WITH TRYPANBLUE.

Evers, of Waren, has just published an article upon this subject. The good results which Nuttall and Hadwen, of Cambridge, obtained in canine piroplasmosis by the use of trypanblue, led Theiler

to try the same preparation for bovine redwater in Pretoria. Theiler has already (*Zeitschr. f. Infectionskr. u.s.w.* Band xi) described his results. Through his work Evers was induced to treat seven cases of bovine redwater with trypanblue in the year 1912, and he obtained cures within from 24 to 36 hours. During the present year, along with Schwedesky of Waren and Zengel of Malchow, he has treated about fifteen cases with trypanblue 1:100 injected *subcutaneously*. All these cases recovered completely within from 24 to 48 hours, without any secondary symptoms. The author and his collaborators can thus confirm the results of Theiler, and they recommend the drug to veterinarians who have to deal with bovine red-water.

Evers strongly recommends the *subcutaneous* in preference to the intravenous injection of trypanblue, as the former method is far simpler, and also acts with absolute certainty and swiftly. The subcutaneous injection of trypanblue 1:100 kills *almost* all the parasites in the animal's body, within 24 hours, and removes all further danger. Trypanblue is an aniline dye, which easily dissolves in water and bears a sterilisation of 24 hours well. If an abscess arises at the site of injection, it should be opened. Animals treated with trypanblue undergo a slight blue staining of the mucous membranes, which disappears after a fortnight. Trypanblue, if used in time, saves every animal affected with redwater within 48 hours. After the injection the temperature rises, especially in severe cases; and then sinks within from 24 to 36 hours to the normal, where it remains. Twenty-fours hours after the injection, parasites are no longer demonstrable in the blood.

From time to time the parasites reappear in the blood, but only in small numbers. This shows that all the parasites are not destroyed by the drug, but the few which remain can in no case give rise to a recurrence of the disease. It is a fact that bovine red-water is a disease the parasite of which remains in the blood after the animal has recovered from the illness, and it has been demonstrated that, when all parasites in the blood have finally disappeared, the animal can again be infected. But as trypanblue does not destroy all parasites in the blood, it may be expected to confer a lasting immunity.

Evers considers, therefore, that in trypanblue we possess a preparation which renders it possible to control the dangers of artificial immunisation (protective inoculation) against red-water, to cure the natural disease with certainty within from 24 to 48 hours, and thus to reduce the mortality from the disease to almost *nil*. Death only occurs if 50 per cent. of the blood corpuscles have been destroyed, and this can be prevented if the treatment is instituted in time.—(*Berliner Tier. Woch.*)

W. R. C.

After discussion in each case, the Glasgow Corporation agreed to give the Town Clerk an increase of £500 a year, the Medical Officer £100, and the Chief Veterinary Surgeon and Meat Inspector £50. Apparently the morals of the citizens are more costly to keep in order than their health.—*Meat Trades' Journal.*

NATIONAL VETERINARY MEDICAL ASSOCIATION.

(Northern Branch).

A meeting of the General Purposes Committee was held at the Grand Hotel, Aytoun Street, Manchester, at 2.30, on June 5. The President, Mr. W. A. Taylor, occupied the chair. The following gentlemen signed the attendance book: Messrs. E. H. Stent, J. A. Gold, Richard Hughes, J. McKinna, A. W. Mason, H Sumner, J. Clarkson, H. G. Bowes, J. W. Brittlebank, G. H. Locke, and A. W. Noel Pillers.

Apologies for non-attendance were received from Messrs. H. J. Dawes, J. Malcolm, J. H. Carter, G. Elphick, R. Jones.

The minutes of the last ordinary meeting were read, approved, and signed by the Chairman.

Proposed by Mr. J. A. Gold, seconded by Mr. J. McKinna, and carried unanimously.

"That Messrs. Taylor, Locke, Brittlebank, and Pillers constitute a special sub-committee to draft rules to be submitted to the General Purposes Committee for the guidance of the branch."

Proposed by Mr. Brittlebank, seconded by Mr. Hughes, and carried unanimously:

"That the financial arrangements as suggested by the Treasurer of the N.V.M.A. be allowed to stand."

Arising out of the discussion on the "Tuberculosis Order of 1913," a member brought forward a point concerning veterinary administration, and it was proposed by Mr. J. Clarkson, seconded by Mr. J. McKinna, and carried unanimously:

"That the member be requested to obtain full particulars from the Executive Committee of the County Council and submit same to the Council of the National Association of Veterinary Inspectors and that the Secretary be instructed to write the above Association supporting the member's action."

Arising out of a discussion on "Milk and Dairies Bill," it was proposed by Mr. W. A. Taylor, seconded by Mr. Brittlebank, and carried unanimously:

"That this meeting views with pleasure the action taken by the Royal College of Veterinary Surgeons with regard to the Milk and Dairies Bill, and that the Secretary be instructed to forward to the Royal College of Veterinary Surgeons a letter conveying the same to the Parliamentary Committee."

A letter was read from Mr. T. C. Toope with regard to fees paid by insurance companies to veterinary surgeons, and the Secretary was instructed to obtain the necessary information asked for and to point out to Mr. Toope that the time has not yet arrived for a resolution of support until full information had been considered by the Committee which had the matter in hand.

The Secretary pointed out that much good had already been done with regard to fees paid to veterinary inspectors by Local Authorities, and it was thought advisable to leave any matters under this heading to the new and important National Association of Veterinary Inspectors.

Proposed by Mr. W. A. Taylor, seconded by Mr. Gold and carried unanimously, "That Mr. A. W. Noël Pillers be elected Honorary Treasurer."

Proposed by Mr. Taylor, seconded by Mr. Locke and carried unanimously, "That Mr. Stent be elected Auditor."

The Secretary reported that a new Society had been formed within the district of the Branch which would probably become affiliated with the National Veterinary Medical Association.

Proposed by Mr. J. McKinna, seconded by Mr. Gold and carried unanimously, "That the Secretary be instructed to write to all the Divisions suggesting the

advisability of all printed matter of each Division bearing the words "A Division of the Northern Branch of the N.V.M.A."

The announcements of meetings by advertisement instead of by post was considered, and the Secretary was instructed to make the necessary inquiries.

The question of the appointment of medical men to be inspectors under the "Cruelty to Animals Acts of 1876" was considered, and the Secretary's action in the matter approved of.

The question of Live Stock Officer for the County of Yorkshire was considered, and the Secretary's action in the matter approved of.

A vote of thanks to the President and Secretary, proposed by Mr. J. McKinna and seconded by Mr. Sumner, terminated the meeting.

MAMMITIS OR MASTITIS IN COWS.*

By Geo. Lockwood, M.R.C.V.S., Peterborough.

At the request of our worthy and highly esteemed President, I have the honour of appearing before you to make a few remarks on a subject that I think will appeal to most, if not all of us present here to-day, in view of the fact that we are chiefly engaged in country practice, and the subject I am about to deal with is one which we very often meet, and speaking for myself, I am afraid that the result of our attention and treatment is not always all that we could desire; and in the hope that during the discussion on the paper we might individually derive some benefit from a free interchange of opinions, particularly as regards the different methods of treatment adopted.

I propose at the outset to just refresh our memories by a very short description of the anatomy of the bovine mammary gland. This structure consists of parenchymatous tissue and stroma, the formation of the former being partly alveolar and partly tubular. In the connective tissue of the stroma there are variously shaped spaces lined by a membrane similar to the alveoli of the lung in the smaller bronchi, and these open into gland ducts; both these are lined by low cylindrical epithelium and together form the milk secreting tissue. The milk flows out of these into the milk ducts to pass into a large cavity at the base of the teat, termed the galactophrous sinus. The ruminant's udder possesses only one galactophorous sinus and teat for each quarter, in the mare's udder each teat is supplied by two sinuses. From the galactophorous sinus a narrow canal, lined with mucous membrane leads to the outer air. The stroma consists of connective tissue and elastic fibres, which form a capsule under the skin and surround the udder. From this capsule the stroma is continued inward into the gland, filling the space between the alveoli and ducts of the gland, and is analogous to the interstitial connective tissue of the lungs. The quantity of stroma varies considerably. During lactation it diminishes and in its place alveoli develop. In the udder of young animals connective tissue predominates; between the larger divisions of the gland and their ducts lie considerable masses of connective tissue, which often contain elastic fibres and fat. A double system of lymph vessels exists in the udder. The one lying near the surface arises from the capsule and is connected with the lymph vessels of the skin, the other invests the alveoli, which are surrounded by five lymph vessels. Fürstenburg was the original observer to distinguish these two systems of lymph vessels. He also noticed that during lactation the lymph vessels appear to be distended with lymph. The alveoli are directly surrounded by lymph capillaries, which in their turn are surrounded by capillary blood vessels, these lie partly on the lymph spaces, into which they pour fluid contents and leucocytes, especially during lactation. The white blood corpuscles are believed to pass from here even into the alveoli of the gland. This intimate relationship between the alveoli and the blood and lymph vessels is of the greatest importance in studying the development of disease of the udder. The skin covering the udder shows no special peculiarity, it has few hairs, but on the other hand it has in places well developed sebaceous glands and large papillary bodies. In cattle the skin of the teats is free from glands and has no hair.

Acute Mammitis—its Pathology and Varieties.

Although acute inflammation of the udder is not essentially different from inflammation in other parts of the body, yet it exhibits certain peculiarities, which are favoured by particular injurious influences. The milk secreting cavities and milk ducts being lined with mucous membrane and communicating directly with the outer air, their diseases closely resemble those of the respiratory and digestive tract. During lactation acute inflammation of the udder is most common, but at other times isolated cases are seen, and under very rare circumstances inflammation of the udder has been noticed in virgin cows. One authority (Guillebeau) says that cows most frequently suffer from mastitis between the fifth and sixth year. The physiological activity of the milk glands in many respects favour the development of inflammation. The early processes of lactation, particularly the congestive stage, so closely resemble acute inflammation, even in their outward manifestation, that it is difficult to draw a sharp line between the two. Both the vascularity of the gland and the processes necessary for the development of secretory activity clearly favour the appearance of disturbances which readily take on an acute inflammatory character, it is therefore very natural that most diseases of this kind occur during the years of parturition. The anatomical formation also favours acute inflammation. The milk forms an excellent cultivating medium for bacteria, to which the ducts offer an easy point of entrance. Finally the position as the udder is exceedingly favourable to the entrance of infectious material, and as injuries to the skin of the udder, and especially to the teats, are frequent in cows, they easily form the point of origin for infectious inflammation.

Causes. These may be divided into mechanical, chemical, thermal, and specific. In cattle the first takes the form of horn thrush and similar injuries; large udders may be trodden on by other animals or by the cow herself when rising. Chemical or thermal irritants are much less frequent, though the milk may undergo change in the udder, irritant substances form and produce acute mastitis. Our knowledge of such conditions, however, is still very limited. Frost bite seldom attacks more than the skin, though it is possible the udder may sometimes catch cold. As we find in other mucous membranes that inflammatory processes are often caused by chills, it may possibly be the case in the udder also. More important than any of these are the specific irritants. After Franck had directed attention to the point, Kitt, Bang, Nocard, and others commenced investigations and described different bacteria as the cause of inflammatory processes in the udder. Infection of the udder may occur by those paths.

The skin: in which, as already remarked, slight injuries often occur, may form the starting point of infection. We see, therefore, why cows are more frequently affected with disease of this character than mares—their teats are injured during milking and infected at the same time. Disease once produced spreads, especially in the course of the superficial lymph vessels

* Read at the meeting of the Lincolnshire and District V.M.S.

of the udder, and therefore first affects the skin and subcutaneous tissue. This method of spread, however, is less frequent than the next one.

The mammary duct In many cases a drop of milk remains hanging at the mouth of the duct and forms a favourable cultivating medium for pathological bacteria, which pass from here into the galactophorous sinus and finally into the smallest divisions of the infected portion of the gland, producing according to their degree of virulence a more or less violent inflammation of the parenchyma of the udder. At the first glance it seems astonishing that inflammatory processes are more frequently produced in this way. The apparent rarity is explained by the fact that an effectual closure mechanism exists in the milk duct, and that the milk seldom remains pent upon the udder for any long time. Numerous experiments made by Franck, Nocard, Kitt, Bang, and others, in which pure cultures of certain bacteria have been injected into the galactophorous sinuses, show that inflammation may start here. Lately it has been disputed whether inflammation of the udder can be caused by not milking the animal. Whilst this was formerly regarded as a frequent cause of mastitis, the general view nowadays is that retention of the milk alone seldom produces disease of this description. It is evident that neither view is quite right. The retention of milk, as such, certainly does not produce mastitis, but it favours its production, because of the readiness with which decomposition and the growth of bacteria occur in the retained milk. This explains why mastitis is most common during hot weather; some authorities state that most cases occur between March and September. Other causes may also be at work, such as the animal's condition, the attention it receives, and the time during which the calf is with it; but it is unquestionable that warm weather favours decomposition of the milk and the multiplication of bacteria in it.

The blood stream. Infection by this means is probably rare, though it appears possible. It also seems possible that when the disease is widely spread, or conditions are favourable for the transmission of the specific microbe, mastitis may take an epizootic form, the infected material being easily carried from animal to animal during milking. It is not astonishing considering the varying virulence of pathogenic microbes, that many different forms of udder infection occur, so that sometimes only slight irritation, sometimes severe inflammation, or sometimes even gangrene results.

The acute inflammatory processes in the udder are divided in two groups, namely: Inflammation of the stroma, the interstitial tissue of the gland which again is divided into two groups—the traumatic and the phlegmonous. Inflammation of the parenchyma of the gland and of the lining membrane of the milk ducts.

Inflammatory processes confined to the surface of the milk canals are somewhat similar to catarrh of the mucous membranes. Where, on the other hand, they extend to deeper tissues they lead to abscess formation or gangrene. So that inflammation of the parenchyma of the udder may be divided into three forms; the catarrhal, the pustular, and the gangrenous. Considering the intimate relationship between the parenchyma and the stroma of the gland, it is scarcely surprising that acute inflammatory processes often extend from one to the other, and that in inflammation of the parenchyma the stroma is sometimes affected, and in disease of the stroma the parenchyma often suffers. The former occurs the more readily because the blood vessels of the udder ramify, without exception, in the stroma. Although no sharp line can be drawn between diseases of the parenchyma and those of the stroma, it is yet generally possible, having regard to the development and course of the disease, to indicate its point of origin and clinically to observe this point of distinction, which affords exceedingly important indication both for the treatment and prognosis the disease.

Traumatic mastitis. Only surface injuries remain confined to the connective tissue of the udder, the deeper reaching involve the real gland tissue. Cattle are particularly exposed to injuries of this kind.

Phlegmonous mastitis. This disease, previously described as superficial inflammation of the udder, affects the skin, subcutis, and interstitial connective tissue. It generally starts from the teats which in the cow very frequently suffer from surface injuries, the rough hands of the milker abrading the skin and possibly conveying infectious material; the straw with which the cow is bedded may also cause injury and infection. The micro-organisms first enter the skin and sub-cutis and set up inflammation, which generally extends to the capsule and the stroma of the gland. The process therefore seldom remains confined to one quarter, but extends to several, or may even attack the whole udder. The isolated course of the lymph vessels of the separate teats sometimes causes the disease to remain confined to single sections of the gland. The skin and subcutaneous tissue are at first œdematous, and later become infiltrated with plastic material, slight exudation of blood is not uncommon. We have to deal then with an erysipelatous or phlegmonous disease of which the skin or subcutaneous tissue forms the special seat.

Symptoms and course. The condition is introduced by redness and swelling which are generally diffuse, and seldom limited to particular portions of the gland It appears suddenly, and the skin is injected; at first it appears bright, and afterwards bluish. The swelling is then soft and doughy, but later becomes hard and firm and requires some force to indent it. The skin is often exceedingly hot but pain, as in subcutaneous inflammation, is seldom severe, nor does the milk show much change in quality, though the quantity certainly falls off. At the outset, slight fever is present; the lymph glands of the udder swell and the tumefaction spreads. The condition may disappear in from four to eight days, the symptoms gradually recede, the redness disappears, the swelling subsides, and the milk secretion become normal. In other cases abscesses form. In or just beneath the skin less frequently in the superficial portions of the gland, several fluctuating points develop, which after a short time, break and discharge pus. Such abscesses are distinguished from those occurring during parenchymatous mastitis by the superficial position and slight size. This disease may also lead to other complications like gangrenous inflammation.

Differential Diagnosis. The present affection is distinguished from diseases of the parenchyma by the little change in the milk, by the implication of several sections of the udder, and by the marked simultaneous changes in the skin. It is more likely to be mistaken for the œdema occurring in the udder at the time of parturition. In the latter condition, however, the well-developed inflammatory symptoms, such as heat, redness and pain are wanting.

Causes. We clearly have to deal with phlegmonous or erysipelatous inflammation, caused by infection through slight fissures and cracks in the skin, particularly of the teats. The disease is probably caused by pyogenic cocci or other microbes. Kitt produced the disease in cows by infecting with the bacillus of malignant œdema.

The Prognosis depends on the virulence of the micro organisms, as shown by the violence with which the process develops and by the degree of the general disturbance, particularly of fever. As a rule the process is benign, but abscess formation prolongs it.

Treatment is similar to that in phlegmonous conditions in other parts of the body. Cold applications are contra indicated, and the best results follow the applica-

tion with slight friction of mild liniments, such as the ordinary Lin. saponis The parts may also be washed with lukewarm solutions of disinfectants, especially if the teats are injured. The udder must be kept warm, and may be covered with wadding to assist resolution. Local injuries must be kept as clean as possible by washing with an antiseptic lotion; after which they are smeared with any suitable material, such as boric acid ointment. It is also advisable to administer occasional small doses of some reliable saline aperient or laxative during the course of the disease.

Parenchymatous Inflammation of the Udder.

This term is not quite correct, for strictly speaking the parenchyma only consists of the alveoli and their epithelium, whilst we include in this group the diseases of the milk canals and galactophorous sinuses. Not infrequently the inflammation is confined to the galactophorous sinus and the larger milk ducts, a condition comparable to bronchitis, which condition some authorities term catarrh of the udder. In other cases it extends to the alveoli and stroma, and leads to pus, or abscess formation, or gangrene. We therefore recognise three forms of parenchymatous inflammation of the udder, the catarrhal, the pustular, and the gangrenous.

Catarrh of the udder. This disease consists of inflammation of the lining membrane of the milk ducts. Sometimes the galactophorous sinuses alone suffer, but generally the large milk ducts are also attacked. The process may also extend to the smaller milk ducts and even into the alveoli of the gland. If the process is confined to the galactophorous sinus and larger milk ducts, the quantity of milk secreted is little diminished, though, as inflammatory exudate from the diseased mucous membrane is mixed with it, the quality may be considerably altered. The more the small ducts and alveoli are involved, the greater the diminution and change in the milk. In consequence the disease by no means offers a constant train of symptoms.

Symptoms and progress. The surface of the udder is little changed, swelling is entirely wanting, while the redness may be slight, but pain in the depths can be detected on pressure and by the sensitiveness shown during milking. General condition is little altered. The principal changes are to be found in the milk, which contains clots of various sizes and often drops of fat. After standing for some time the milk may show a yellowish covering, or sometimes it may be reddish in colour from admixture of blood. The reaction is generally normal, but it may be acid or excessively alkaline. The process sets in suddenly and attacks sometimes only one and at other times several sections of the udder. In most cases it disappears in a few days, the milk becoming normal. Sometimes, however it takes a chronic character, the milk retains its abnormal appearance and may be mixed with pus, whilst the mucous membrane of the galactophorous sinus gradually becomes thickened and feels on palpation like a firm cord, while the swelling extends from the sinus into the other parts of the gland. Should the process in the smaller milk ducts become chronic, it causes localised thickening and induration of the udder. In other cases the inflammation leads to stenosis or occlusion of the milk ducts, with change in the affected sections of the gland, the induration extending as far as the skin. Abscess formation however is not often seen.

Prognosis depends principally on the course of the disease, the longer it has lasted the less the chance of complete recovery. In some cases the function of the udder may be destroyed for the whole of one lactation period. The outlook becomes very grave when extensive thickening and hardening take place, and even small thickenings may cause trouble on account of their forming new points of origin for the disease at the next milking period.

Causes. Without doubt the disease may be caused by chills, or by chemical decomposition, or other change in the milk while in the udder, causing it to become irritant. The fact that it is generally confined to one section of the udder indicates its origin through the sinuses. It is probably due to invasion by micro organisms of slight virulence, which find a favourable soil in the milk. Opportunities for such infection are very frequent and this disease is often seen widely disseminated, being carried by the milkers from one animal to another. Microbes have been directly recognised in the diseased udder or in the milk and the disease produced by injection of pure cultures. Nocard and Mollereau recognised streptococci as the cause of the disease, whilst Bang thought that staphylococci produced it. Hock saw the affection during the course of foot-and-mouth disease. Several portions of the udder were often simultaneously affected.

Treatment. With a view to prevention the greatest care should be taken against introducing infected probes, bougies, milk catheters, etc., into the mammary ducts and galactophorous sinuses. In enzootic outbreaks it is advisable to isolate the diseased and provide against transmission of infection by the milker's hands. Beyond combating inflammation, little more can be done. It is very important however to withdraw the milk frequently and at such times massage will be found to assist the discharge of secretion from the smaller milk ducts. The diseased udder must be kept warm, and where the disease is clearly infectious, antiseptics may be injected.

Purulent inflammation of the udder.

In this form the inflammation also originates in the milk ducts and alveoli, but instead of remaining confined to their surface it spreads to the depths and to the interstitial connective tissue. The purulent catarrh affecting the lining membrane of the milk ducts is accompanied by phlegmonous inflammation of the connective tissue substance of the stroma of the gland. Franck was first to produce the disease experimentally, by injecting a decomposed meat extract unto the galactophorous sinuses in cows. Next day that portion of the udder was inflamed, the milk was curdled, and puriform, containing numerous pus corpuscles and micrococci, and when injected into the udder of a healthy cow reproduced the same disease. Purulent mastitis is clearly produced in a similar way, and therefore always remains confined to single quarters of the udder. Kitt described the disease very thoroughly, he found excessive cellular infiltration of the entire connective tissue of the udder, emigration of cells, even into the lumen of the alveoli, necrosis and shedding of the epithelium of the gland, concretions in the milk ducts consisting of gland secretions.

Symptoms and Progress. The disease sets in suddenly with pain and the other symptoms of mastitis, the swelling originates in the interior of the udder, but spreads as far as the skin which is abnormally warm and reddened. Functional disturbance soon sets in, the secretion of milk diminishes or entirely disappears, the milk is curdled, and later appears yellowish from admixture of pus, or red from bleeding; finally it may become more and more puriform and contain curdled material, which blocks the milk ducts. These symptoms are supplemented by fever, loss of appetite, excessive thirst, and depression. The swelling may interfere with the movement of the corresponding hind leg and cause lameness; sometimes symptoms like paraplegia are seen.

Microscopic examination reveals numerous white and red corpuscles, pus elements, and fattily degenerated gland cells in the milk. Chemical examination shows albumen and water to be in increased quantity, sugar and casein to be diminished. Either resolution occurs or the disease goes on to abscess formation. In the first

case, after four or five days, sometimes a little later, the symptoms gradually begin to recede, while the secretion more and more recovers its normal character. In some few cases no permanent disturbance is left, though as a rule the affected section of the udder does not completely recover its functional activity until the next lactation period. Abscesses, however, frequently form Those which occur in the interstitial connective tissue either perforate into the milky canals or through the skin. They generally lie deep, and when developing in the connective tissue above the udder may lead to the destruction of a large section of the gland, as described by Johne. Permanent thickening and milk fistulæ are not infrequent results of this process. Hard swellings sometimes result from the accumulation of clots in the milk ducts, which gradually become inspissated, and form yellowish crumbling masses, surrounded by a capsule of connective tissue. They also result from abscesses, and not infrequently form the point of origin of disease at a later period. Such suppurative processes may entail grave consequences, and at times lead to pyæmia or septicæmia.

Causes. There is no doubt that this form of mastitis is caused by infectious materials entering through the mammary ducts. The experiments of Lister, Roberts, Meissner, Kitt and others show that normal milk contains no organised ferment, and therefore when such is found it must have entered from without. Further, as the diseased process always appears in a single section of the gland, the natural conclusion is that infection follows through the mammary duct. Although infection through the blood stream is possible it is unquestionably very rare. On the other hand opportunities for infection through the milk canal are very frequent. The little drop of milk left hanging in the teat after milking may facilitate it, or milk catheters or other instruments introduced into the mammary duct also act as bearers of infection. The experiments of Franck, Nocard, Mollereau and others have shown beyond doubt the possibility of this mode of infection. Numerous experiments have been made regarding the nature of the infectious material. Guillebeau found ten different microbes, comprising staphylococci, streptococci and several bacilli, possessing various degrees of virulence. Guillebeau believes that the constituents of the milk, particularly the milk sugar, are decomposed by the microbes and irritant materials produced, which cause inflammation.

Prognosis. There is little hope of completely restoring functional activity to the udder during the existing period of lactation. Any further opinion may depend on the progress of the disease. When large tracts of tissue become indurated, full function will not be restored even during the next lactation, and in extreme cases life may even be endangered.

Gangrenous inflammation of the udder.

Considering the varying virulence of the infectious material, it is not surprising that gangrene sometimes occurs. This form of the disease is commonest in sheep, though it always occurs in cows. The nature of the specific poison is at present little understood. Nocard isolated a micrococcus from the udder of a sheep affected with gangrenous mastitis, pure cultures of which, injected into the mammary duct of healthy sheep, always reproduced the disease, but in other animals only caused slight swelling.

Symptoms and course. The disease starts as a very acute parenchymatous mastitis with severe general symptoms; high fever, loss of appetite, great weakness, severe pain and stiff straddling gait, which latter first directs attention to the udder. Local examination first reveals bluish violet spots in the skin, which on palpation are found to be very soft, insensitive and often abnormally cool. These spots quickly spread. They are surrounded by an inflammatory swelling, which may extend to the lower part of the abdomen and the thigh. The animal stands with the back arched and the hind legs straddled, exhibiting acute pain, and after a short time display well marked symptoms of septicæmia. Not infrequently death occurs in a comparatively short time. In exceptional cases the local process is limited, a dissecting inflammation sets in, which separates the necrotic tract and may result in recovery; this is, however, a rare exception, the greater number of animals die from septicæmia.

Prognosis is unfavourable, for in many cases not even the sacrifice of the udder can save the animal's life.

In treatment of the purulent and gangrenous form of mastitis, the first point is to prevent infection, or combat it if already existing. The greatest care is required in using milk tubes, probes, etc., introduced into the milk canals. If the disease becomes enzootic, and especially if it takes on the gangrenous form, isolation of the affected cows and disinfection of the stalls is absolutely necessary, it is also advisable to have the affected cows under the special care of one attendant, who has nothing to do with the other milking cows. In purulent mastitis occurring enzootically similar precautions are necessary. Some observers believe that the outbreak of this disease is intimately connected with the use of old, bad straw. The diseased milk should be most carefully removed from the premises, the milk being drawn into a pail kept specially for the purpose and not milked on the floor. Frequent milking of the diseased quarter is just as necessary, for the increase of infectious material occurs chiefly in the milk. Provided the udder is not too sensitive, it should be gently rubbed and kneaded to favour the discharge of inflammatory products from the acini of the gland. The milk syphon is of little use on account of its becoming stopped by clots. The diet should be of such a character as to reduce milk secretion to a minimum. For this purpose purgatives such as sulphate of soda may be used, and under certain circumstances bleeding may be resorted to. The remaining points are to destroy or render inocuous infective material in the udder, and to combat inflammatory changes. The former may be effected by injecting antiseptics, though practitioners hold very different views as to their action; some advise their use, while others consider them of no particular value. In gangrenous inflammation they are generally too late and without effect, but on the other hand they are often very useful in the purulent form. Their effect clearly depends on what tissues require disinfection, though they can penetrate the galactophorous sinuses and large milk ducts, they fail to reach the fine milk ducts and alveoli. A 4oz solution of boracic acid is generally recommended, or a solution of chinosol (15 grs. to the pint), the injection being distributed through the gland as much as possible by cautious manipulation and allowed to remain in the udder for 10 or 15 minutes. Some veterinary surgeons have had good results. Other injections are also used for this purpose, such as a 2 per cent. solution of alum, or a 2½ per cent. solution of carbolic acid.

In purulent mastitis, warm poultices or fomentations and wrapping the parts in cotton wool will assist in decreasing inflammation. Bang recommends linseed or oatmeal poultices, and the application of woollen cloths wrung out of hot water and kept warm by covering with mackintosh. Fomentation with diluted alkali or soap and water have often been recommended. Once tension and pain diminish, the parts may be smeared with flour paste and covered with wadding. At this stage the application of antiphlogistine or some such preparation, afterwards covering with cotton wool is very often followed by beneficial results. A mixture of two tablespoonfuls of water, four of starch, twenty of glycerine, and one of turpentine is also a good ap-

plication in these cases. When warm, the mass forms a paste, which is applied thickly and left on for fourteen days. From time to time it may be removed to allow of massage, which is of considerable assistance in this disease. Cold is considered by experienced practitioners to be badly borne—a conclusion warranted by the nature of the disease. The gentle rubbing in of unirritating fats is also useful; or a mixture of equal parts of mercurial ointment, soft soap and lard has a good effect in many cases. As soon as an abscess appears under the skin it should be opened and the cavity cleansed and disinfected. Local induration can often be dispersed by careful massage, though this is of little value when the swelling is of old standing. In gangrenous mastitis early incision into the necrotic parts and the application of antiseptics are alone serviceable. If the process has made much progress, even this treatment seldom suffices and the animal's life can only be saved by amputation of the diseased portion, or of the whole udder; but this operation is seldom performed owing to the fact that in the majority of cases when the occasion for such drastic interference arises the affected animal is not in a sufficiently strong physical condition to withstand the severe shock of the operation. It sometimes happens that in gangrenous mastitis the general symptoms are not very severe, and in course of time the affected quarter or quarters slough right out. During the time this process is going on it is necessary to keep the patient in a clean loose box, and apply antiseptic lotions liberally and often to the affected parts.

I feel that a paper on this subject would be quite incomplete if I should conclude without making some reference to that form of mastitis caused by tubercular infection, which at this particular time is of such great interest and importance to us all. At the same time I shall be very brief in my remarks, as I fear I have trespassed on your time as far as I dare already.

Tuberculosis of the udder may appear as a first and single symptom of tuberculosis in cows which are otherwise quite healthy, although it is much more frequently a secondary infection. It appears in the first stages as a diffuse, painless and comparatively firm swelling, usually of one quarter, and as a rule one of the hind quarters. More rarely it may appear in two quarters at the same time. The milk is at first normal, but in a comparatively short time, usually about a month, it becomes thin and watery, and mixed with flakes, and sometimes, though by no means always, the milk contains tubercle bacilli. It is quite possible to search in vain for the tubercle bacillus in the milk of cows which are thoroughly infected with tuberculosis. Bollinger proved that milk from the udder of tuberculous cows was undoubtedly infectious in 55 per cent. of cases, although the demonstration of the tubercle bacilli in such infected milk succeeded only once in 20 cases. The swollen parts of the udder become more and more indurated, until at last they are almost as hard as a stone. The process frequently spreads from the hind to the front quarter of the udder, and the supramammary lymph glands often become greatly enlarged.

Works consulted: Möller's Veterinary Surgery; Friedberger and Fröhner, Veterinary Pathology.

Action for Cruelty against Railway Company —Horse Injured in Transit.

At the Bristol Police Court on Tuesday, June 10th, the Great Western Railway Co. were the defendants in a case of alleged cruelty to a horse during transit from Fishguard to Bristol, the summons being taken out at the instance of the Royal Society for the Prevention of Cruelty to Animals. The case was one of considerable importance, and the Counsel appearing were Mr. Stuart Bevan for the prosecution and Mr. H. H. Curtis Bennett for the Great Western Railway Company. The terms of the summons were that the defendants permitted a certain animal, to wit, a horse to be carried by rail, and owing to injury and fatigue it could not be carried without unnecessary suffering during the intended transit by rail.

Mr. Stuart Bevan said the Great Western Railway Company were charged with an offence under Section 16 of the Horses Importation and Transit Order, 1912, an Order made by the Board of Agriculture under powers conferred upon them. On the day in question the Company, then being in charge of a dark grey horse, travelled that animal from Fishguard to Bristol, when, by reason of its injuries and condition, it must have suffered unnecessary suffering during transit. The facts were that on April 3rd Mr. Reen, a dealer, of Bristol, purchased some horses in Ireland, and consigned four of them to Bristol. When the animals arrived at Fishguard on April 6th they were not accompanied by Reen or anyone in his employ or on his behalf, so that the moment he consigned them to the railway company the persons in charge of the animals were the railway company and the steamship company by their servants over whose system the animals travelled. On arrival at Fishguard on April 6th the animals were taken off the boat and put into a truck consigned to Bristol. In cases of this sort there was always some difficulty in getting evidence as to the condition of the horses or any other animals at any particular point in transit. Necessarily, from the nature of the transit, the only persons who had facilities of observing the condition of the animals were the railway employes. Fortunately, in this case the necessity of calling evidence from Fishguard as to the condition of the animal at that port was dispensed with, because they had a consignment note of the Great Western Railway Company in which a description was given as to the condition of the grey horse in question.

The note reads:—"Live stock invoice. G.W.R. Co. From G.W.R., Waterford, to Bristol, G.W.R., Reen, Bristol, 4 horses." Mr. Bevan said that there was a pencil note to the effect that one horse had a cut over the left eye, and was in weak condition on being received at Fishguard Harbour. So they had the fact that at Fishguard, on the statement of the company, one of these animals was in a weak condition, and and were it necessary he would ask the Bench on that evidence, coupled with the evidence as to the condition of the animal on its arrival at Bristol, to come to the conclusion that the horse could not have been in a fit state to do the journey from Fishguard to Bristol without unnecessary suffering. For obviously, a servant of the company would not put a memorandum of that kind on the invoice without some object, and that object was to protect themselves. But the case did not rest on that evidence, but would be established on what happened at Cardiff. It was about five hours' journey from Fishguard to Cardiff, and on the arrival of the truck at Cardiff containing the four horses the Great Western guard whose duty it was to bring the train on looked at the horses and saw that one of them was down. He tried to get it up, but it was in such a state that he could not do so. When the guard recognised that it was impossible to get the animal up he refused to take it on to Bristol, and what was done was this: The other three horses in the truck, which were apparently all right, were taken out of the truck in which the grey horse was lying, and put into another truck and taken on to Bristol by this guard whom he would call before them. The grey horse was later brought on to Bristol in a truck alone. When Mr. Reen saw it on its arrival it was still lying at the bottom of the truck, unable to rise. Its eyes were swollen, and it was in a terrible condition of weakness and distress. A veterin-

ary surgeon was sent for, who, after examining it, ordered it to be killed. Inspector Hammond, R.S.P.C.A., subsequently saw the man who was in charge of the transferring operations from the boat to the train, who made a statement to him. These were the facts, and he contended that the animal was conveyed when it was in a weak and injured condition, and it was thus caused unnecessary suffering.

Evidence in support of this statement having been given by witnesses for the prosecution,

Council then proceeded to call evidence.

WITNESSES' TESTIMONY.

William Reen, horse dealer, of Bristol, proved purchasing four horses in Ireland and booking them to Bristol. The horse which was the subject of the prosecution was a grey three-year-old. When the horses arrived at Bristol the grey was down, and they could not get her up. He lodged a complaint, and a veterinary surgeon was sent for, but the animal had to be destroyed.

In cross-examination, witness said he did not know that the crossing from Ireland was rough, or that the boat was two hours late. The animal was badly bruised about the eyelids.

Percy Thame, quay labourer, employed by the Great Western Railway at Goodrick, stated that he helped to remove the horses from the boat at Fishguard to the railway trucks. The grey horse was "staggering," and seemed in a sweating condition.

Replying to Mr. Bevan's questions, the witness said he did not form any opinion as to whether the horse was fit to travel.

In cross-examination, witness said there had been a very rough crossing, and the boat was two hours late. There was, in his opinion, nothing unusual with a horse staggering after a rough sea passage.

Edward White, goods guard, in the employ of the Great Western Railway Company, who took the train to Cardiff, stated that when he found one of the horses down in the truck he called the inspector's attention to the matter, and tried to get the animal up. They were unsuccessful, and the truck was taken off the train because it was thought that the horse that was down might be trampled upon by the others.

Frank Hammond, an inspector of the Royal Society for the Prevention of Cruelty to Animals, stationed in Bristol, in the course of his evidence, gave a description of the injuries to the horse. When he saw it lying on the stone setts outside the cattle pens he found that its head was badly bruised and both eyes were closed. A little blood was coming from its mouth, and it was breathing heavily. In his opinion the horse was suffering considerably. After the animal had been slaughtered he examined the frame, and found that the spinal column had been injured. On the 14th April he went to Fishguard, and there saw a man named Russa, who had been in charge of the trucking of the horses from the Irish boats. Witness was proceeding to refer to his conversation with Russa when

Mr. Curtis Bennett objected, urging that as the man himself was available as a witness, he should have been called.

The Bench decided to admit the evidence.

Inspector Hammond proceeded to state that Russa told him, amongst other things, that he wrote on the consignment note, "One horse cut over left eye, and in a weak condition when received at Fishguard Harbour."

In cross-examination, witness said Russa told him that the animal was in the truck six hours or so before the train started and that he went and looked at it several times and saw that it was standing.

Mr. Wm. James Cave examined by Mr. Bevan :—

You are a member of the R.C.V.S., practising in this city?—Yes.

On the 9th of April did you make a post mortem examination of the spinal column of a three-year-old grey gelding?—I did.

What did you find?—There was a quantity of blood clots in the spinal canal with the spinal column severed in several places. It was impossible to make a more minute examination.

Mr. Richardson Cross (magistrate): You mean it had been cut to pieces with a hatchet?—Yes. I was shown the hide and there was extensive bruising on the forelegs.

Mr. Bevan: Did you find anything else?—The skin surrounding the eyeballs was also damaged.

What effect would the injury to the spine you found have upon the animal's power of standing?—My experience is that it would cause paralysis to the hind limbs.

The Magistrate's Clerk: That is, the clots of blood?—Yes.

Mr. Bevan: What would the effect be from the point of view of suffering to the animal travelling by rail with that injury to the spine?—The animal would be unable to rise; on account of the highly nervous temperament it would be in a state of panic, and would make every effort to get on its front legs. In my opinion to travel a horse in that condition would cause much unnecessary suffering.

Can you tell us whether the bruising on the forelegs and round the eyes was consistent or inconsistent with the animal having attempted to rise?—Quite consistent I should think.

Cross-examined by Mr. Curtis Bennett: Shall I be right in saying with regard to the eyes that the signs of injury there were more in the nature of abrasions than bruises? I suggest it was cuts upon the eyelids?—Yes, cuts and abrasions.

They would cause very slight pain?—It would be very difficult to say, sir.

Is it not always a matter of conjecture to say how much an animal suffers under any given set of circumstances?—Yes, exactly.

The abrasions you found would only be likely to cause the animal slight pain?—I do not think for a moment it would be very acute pain.

The hind limbs were paralysed were they not?—I did not see the animal alive.

These would have been paralysed?—Yes.

There would have been no pain there?—Not behind the seat of injury.

In an injury of the sort you found that this animal had sustained, am I right in saying that the pressure of the effusion is increased both at and near the place of injury?—Certainly.

Would not that increased pressure at the seat of injury have the effect of causing the animal no pain at that seat of injury or behind?—I do not agree with that. The congested blood vessels have a differentaction to that.

You do not agree it would have no pain posterior to the injury?—There would be no pain at the actual seat of injury, but anterior to the injury I should imagine the animal would be suffering.

You prefer to put the pain not at the seat of injury but in front of the injury.—Yes.

You spoke about the panic a horse, being a nervous animal, gets into. That applies, does it not, if a a horse is down for any reason?—Not always; not quite in the early stages. It depends upon how long this animal was down as to whether it would be in a panic. The shocks get more severe when the animal has been down some time.

It does then depend upon the time the animal had

been down, whether it would be in a panic or not?—Yes.

You never saw the animal until after it was slaughtered and cut up to some extent?—Just so.

The Magistrate's Clerk: You have heard the evidence of the witnesses in this case. You have heard the evidence of the guard as to the horse being down at Cardiff and the efforts to get him up. Does that lead you to any conclusion as to whether the horse had received an injury to its spine?—Of course the horse would go down at once when he had received such an injury. Possibly he laid down through exhaustion and the injury happened during his struggles.

The evidence does not lead you to a definite conclusion, then?—It is extremely difficult to decide.

This was the case for the prosecution.

The Defence.

Mr. Curtis Bennett, for the defence, pointed out that the issue was a very serious and important one, not only for that particular railway company concerned, but the transit generally of animals in this country. He would be the last to say that unnecessary suffering was not known during the transit of animals, but it was absolutely impossible to avoid it. The question they had to decide there was whether in that particular set of circumstances the railway company, through the actions of their servants, were criminally liable, for what in fact was done. Mr. Bennett said it was easy to be wise after the event, but said that, looking at the different actions that were taken at different places, were those actions sufficient to bring not only civil liability but criminal liability on the servants of the company and on the company through the servants? He then went on to review the facts as given in the evidence for the prosecution, stating that all the company's servants had acted very properly. Could they say, upon the evidence, that the actions of any of the officials of the company made them criminally liable? Mr. Curtis Bennett pointed out the amount of evidence that was necessary to secure a verdict in a civil case, quoting several cases to prove this. Was there any action of any servant of the railway company, counsel went on to say, which made them responsible for the condition of the horse? There was nothing at Cardiff to show that the animal was unfit to travel lying down by itself. There was no evidence as to when or where exactly the injury was inflicted or sustained. He submitted with confidence that upon the evidence of the prosecution there was no such evidence upon which they could convict the railway company of criminal negligence. There was no sort of evidence which was necessary to make the railway company even civilly liable. There must be even in a civil action, evidence of some definite act of cruelty; mere surmise, mere guesswork was not sufficient.

Mr. William Hunting, examined by Mr. Curtis Bennett: What is your address.—5 Halkin Place, Belgrave Square.

You are a Fellow of the Royal College of Veterinary Surgeons, and a past-president of the College?—Yes.

You have been in court and have heard the evidence in this case?—Yes.

From the details of the post-mortem examination, as far as Mr. Cade can give them to us, what is your opinion as to what the animals suffered from?—Paralysis of the hind quarters.

Caused by ——?—Injury to the spinal cord.

Have you formed any opinion, having heard the evidence, as to how that injury might have been caused?—It is not an uncommon accident. An animal gets down and gets his forelegs up against one wall and his hind feet against another. Muscular effort does it.

The Magistrates' Clerk: It can be caused by itself?—It can be caused by violent struggles, both ends of the body being fixed; you want two fixed points to do it.

Mr. Curtis Bennett: You have heard the evidence of the abrasions and bruising over the eyelids?—Yes.

Might the injuries have been caused within a short space of time?—Yes, or by repeated actions. A horse with an ordinary attack of gripes throws himself about and may get the injuries described in half an hour.

Would the injuries to the eyelids, you have heard of, have caused much pain to the animal?—No, very little.

As to this injury to the spinal cord, I need not trouble you, because Mr. Cade has agreed with me that from the seat of the injury backwards, there would be no pain at all?—No.

What do you say with regard to the animal suffering pain in other respects?—There is nothing to cause pain anterior to the injury unless it was the bruising of the forelimbs or head; I do not consider those injuries very great.

Do you say the injury itself caused no pain anterior to the seat of the injury?—You mean just at the spot injured; it was a case of a broken back. Well that is a question somewhat controversial. I have never been able to recognise any pain in a horse with a broken back. Then again there is the fact that they will voluntarily move; with a broken leg they will not. With a broken spine they will voluntarily move and even trail their hindquarters behind them. Another time they will go round and round in a circle, the paralysed hindquarters remaining as the pivot.

Would they do that if suffering severe pain?—I do not think so; I cannot imagine it.

How long does your experience extend over, Mr. Hunting?—I had my diploma 48 years ago.

We have had evidence of the animal being brought over from Ireland with a rough crossing, and staggering on its way to the trucks. Is there anything extraordinary in that?—I cannot believe that the staggering had anything to do with the spinal injury.

Mr. Curtis Bennett: I do not think they suggest that.

Mr. Bevan: Oh, no, we do not.

Witness: I think that was accounted for by the rough journey.

Mr. Curtis Bennett: The other three were not affected?—They were old horses. This was a three year old.

After the journey the horse had 6½ hours rest before it was sent on by rail?—It should have recovered sufficiently from its sea-sickness to go on with its journey.

Cross examined by Mr. Bevan: If a horse after a sea journey was in such a weak condition, so weak that the invoice had to be endorsed, would you advise travelling from Fishguard to Bristol?—I can hardly say. The man who advised the travelling would be a better judge than me.

Do you suggest that?—Yes. He looked at the horse and knew more about its exact condition than I could know.

May I ask you this, if you get a horse down, alone in a truck, and unable to get up would not travelling that horse 40 or 50 miles cause it great pain?—The suffering would be the result of injuries to the head in banging against the floor.

Knocking itself about the whole time?—Oh, dear no, intermittently.

You would never permit a horse you knew to be down and incapable of getting up, to travel 40 miles, would you?—I would not recommend it.

You heard what the condition of the horse was at Cardiff, that it was down and could not get up. Do you think it possible that it sustained the injury to the spine at Cardiff?—I think there is no doubt it was injured between Fishguard and Cardiff.

Therefore it must have been apparent that this horse if sent on from Cardiff to Bristol was in such a state that it could not rise?—Yes.

That the railway company trucked it none the less?

If you had been there would you have permitted the horse having a broken back to be sent to Bristol?—No, I should not.

Why not?—What would be the use to take the animal to Bristol to pole-axe it when it could be done at Cardiff?

Would the animal have suffered a good deal less?—I do not think it suffered much.

Would it have been more merciful?—It would have looked nicer.

Would it have been more merciful in so far as it would not have been affected by these abrasions?—It could not have suffered much because they are described as abrasions.

No, bruises and abrasions.

The Magistrates' Clerk: Some would be accounted for before Cardiff was reached.

Mr. Bevan: The cut over the left eye would be, clearly. We were told that the forelegs were extensively bruised.

The Magistrates' Clerk: They did not say which leg it was.

Mr. Bevan: The forelegs.

Witness: I understood it was the off leg.

Mr. Bevan: Mr. Cade told us it was the forelegs.

Mr. Cade: Both forelegs.

Witness: That looks as if he had not remained in one position.

Mr. Bevan: How do you account for the bruises on the upper part?—I do not know unless they occurred at Cardiff when they tried to take him out.

We do not know that they tried to take him out at Cardiff?—I beg your pardon. I mean Bristol when the vet. examined him.

Re-examined by Mr. Curtis-Bennett: Supposing the animal was lying down at Cardiff would there have been anything to show a man in the position of Guard White that its back was broken?—No. It is a very difficult thing to diagnose. There might be three or four reasons why the horse could not get up behind.

This was the case for the defendant.

Mr. Bevan addressed the magistrates on the points of law arising out of the cases quoted by Mr. Curtis Bennett.

After consulting in private, the Chairman of the Bench said they had very carefully considered the case, and they found as a fact that the horse was conveyed from Cardiff to Bristol in such a state as to cause it unnecessary suffering, and that the defendant Company in charge there, of permitting it. There must be a conviction; the defendants must pay a fine of £2 and £5 5s. costs.

The Bacillus of Distemper.

Apart from the veterinary and economic aspect of distemper, it offers the bacteriologist an opportunity of studying a contagious disease of the respiratory tract. The list of investigators since the time of Pasteur includes the names of many medical men. It is highly probable that the question of the specific organism is on the road to settlement. Dr. J. P. McGowan, in 1910, was the first to describe a particular coccobacillus found in pure culture in the trachea and lungs of dogs which succumbed to typical distemper in the laboratories of the Royal College of Physicians of Edinburgh. The contagion spread to other laboratory animals not usually considered susceptible to the disease. He also obtained the same organism from kennels in various parts of Scotland where distemper was raging. The finding of this organism in pure culture in the trachea of dogs dying of distemper was corroborated by Dr. Leitch, of Dundee. In 1901 Dr. Monckton Copeman had described before the Royal Society a somewhat similar, but not identical, organism. Dr. McGowan claimed to have produced typical distemper by introducing into the nostrils of dogs cultures of his bacillus. Quite independently, Ferry, working in the laboratories of Messrs. Parke, Davis and Co. in Detroit, obtained an organism identical with McGowan's, to which he gave the name *Bacillus bronchicanis*. The scrupulous precautions he took against natural conveyance of the disease to the animals under experiment added greatly to the strength of his conclusions. Two workers in the Department of Experimental Pathology of Cornell University—Torrey and Rahe—have gone into the whole subject very carefully and fully, without preconceived notions or predilection for any particular microbe, and their results, which are given at length in the *Journal of Medical Research* (January, 1913), prove apparently beyond a doubt that the organism described by McGowan is the specific cause of canine distemper.—*The British Medical Journal.*

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.	Anthrax. Outbreaks Con-firm'd	Anthrax. Outbreaks Re-ported	Anthrax. Animals Con-firm'd	Anthrax. Animals Re-ported	Foot-and-Mouth Disease. Out-breaks	Foot-and-Mouth Disease. Ani-mals.	Glanders † (including Farcy) Out-breaks	Glanders † (including Farcy) Ani-mals.	Parasitic Mange. Out-breaks	Parasitic Mange. Ani-mals.	Sheep Scab. Out-breaks	Swine Fever. Out-breaks.	Swine Fever. Slaugh-tered.
GT. BRITAIN. Week ended June 14	13		15				2	7	59	129	1	65	772
Corresponding week in 1912	10		12				2	3	34	67		67	1172
Corresponding week in 1911	15		30				4	4				76	1006
Corresponding week in 1910		30		34			5	12				38	304
Total for 24 weeks, 1913	306		329				82	236	1595	3261	121	1116	16072
Corresponding period in 1912	475		531				79	162	2027	4511	162	1637	21152
Corresponding period in 1911	446		557		1	18	100	261			302	1216	13386
Corresponding period in 1910		761		920			168	466			312	650	5966

† Counties affected, animals attacked: Durham 1, London 3, Middlesex 1.

Board of Agriculture and Fisheries, June 17, 1913.

The London Orphan Asylum.

Dear Sir,

May I ask you to intimate the members of the profession that I am a holder on behalf of the Victoria Veterinary Benevolent Fund of six votes in the London Orphan Asylum.

Should any of our members be interested in a case I shall be pleased to send the votes on to them.

—Sincerely yours, WM. SHIPLEY.

Southtown, Gt. Yarmouth.

The Athletic Sports of the R.V.C., Camden Town.

These annual sports were held at the Kensal Rise Athletic Grounds on Wednesday afternoon last. The weather was superb from the point of view of a spectator, but very exhausting from that of a competitor; and probably the extreme heat had something to do with the fact that only comparatively slow times were recorded. However, there was no lack of keenness; some close contests were witnessed; and the large gathering of students, teachers, and friends passed a wholly enjoyable afternoon. At its close Mrs. Wooldridge presented the prizes; and the following list gives the names of the successful competitors in the various events:—

100 Yds. Scratch.—Final heat: K. H. Soutar, 1; R. H. Stalker. Time, 11 secs.

Throwing the Cricket Ball.—H. McD. Paul. Distance, 102 yds. 10 in.

Putting the Weight.—R. H. Stalker. 30 ft. 8¼ in.

Long Jump.—J. Daly, 1; L. G. Housden, 2. 18ft. 10in.

120 Yds. Hurdles.—Final heat: K. H. Soutar, 1; J. C. Coleman, 2; F. L. Haydon, 3. Time, 19 4/5 sec.

Sack Race.—H. Chown, 1; W. B. Howe, 2; J. Gibson, 3.

High Jump.—K. S. Simpson, 1: J. E. Barnes, 2. Height, 4 ft. 10 in.

220 Yds. Hcp.—Final heat: J. E. Barnes 1; R. H. Stalker, 2. Time, 25 secs.

One Mile Walk.—F. L. Haydon, 1; H. H. Curzon and W. B. Howe, dead heat. Time, 9 min. 29 2/5 secs.

Half-Mile Scratch: K. S. Simpson, 1; L. G. Housden 2; W. E. Little, 3. Time, 2 mins. 18 4/5 secs.

Obstacle Race: H. Chown, 1; G. H. Bennett, 2; D. C. Greene, 3.

Quarter-Mile Scratch.—R. H. Stalker, walk over.

One Mile Hcp.: L. G. Housden, 1; W. A. Dickinson 2; T. L. Wright, 3. Time, 5 mins. 11 1/5 secs.

Ladies' Race: Miss Wyborn.

Relay Race (Inter-Class): Class D, 1; Class C, 2; Class B, 3.

Consolation Race: E. C. Bowes, 1; P. S. Sparling, 2.

College Derby (Donkey Race): J. Gibson.

Tug-of-War.—Final heat: Class B beat Class C.

The championship competition, in which the competitor gaining the highest total of marks in the various events is entitled to hold the Wheatley Challenge Cup for a year, resulted in a tie between K. H. Soutar and L. G. Housden.

Personal.

Mr. STANLEY WOODS, the veterinary surgson, who is acting for Mr. Abrams during the latter's absence on leave, sustained a regrettable accident in the course of his work last week. He was kicked full in the breast by a restive horse and, although the injury is apparently not dangerous to life, the breast bone has been damaged. He was removed to hospital on Saturday, 17th ult. —*The Straits Times.*

ARMY VETERINARY SERVICE.

Extract from *London Gazette.*

WAR OFFICE, WHITEHALL, June 13.

REGULAR FORCES. ARMY VETERINARY CORPS.

Lieut. W. Halstead resigns his commission. Dated June 14.

SPECIAL RESERVE OF OFFICERS.

ARMY VETERINARY CORPS.

W. Halstead, late Lieut., A.V.C., to be Lieut. Dated June 14.

OBITUARY.

JOHN LITTLE, M.R.C.V.S., Abbey Town, Cumberland.
1863, Graduated, Edin: April, 1880.

Mr. Little died on June 11th, from cardiac failure, at the age of 76.

ARTHUR LAWRENCE POLLARD, M.R.C.V.S.
Liverpool: Dec., 1912.

Death took place on May 18th, from acute bronchopneumonia. Aged 33 years.

GEORGE FREDERICK GOOCH, V.S. who has been living with his son, Fredk. Leeds Gooch, F.R.C.V.S., at 19 St. Martin's, Stamford, during the last 17 years, died at Holt, Norfolk, on June 16th, of syncope. Aged 84 years.

CORRESPONDENCE.

THE FINANCES OF THE R.C.V.S.

Sir,

The simile of your correspondent "Vis Unita Fortior" is altogether beyond the mark. The question of the Finances of the R.C.V.S. still remains, and in trying to make my meaning clear on the point I will be more accurate in my figures than previously.

There are 3,441 M.R.C.V.S. on the Register; one guinea each per annum would mean the sum of £3,613 1s. I asked the question, "What the Council propose doing with £3,440 per annum?" He replied by referring me to the balance sheets for the past few years—no satisfactory solution to my query. I may tell him I have studied these very carefuly, but so long as the policy remains, "The whole loaf or no bread," I must simply look on and wait developments, and I may say further that if the Bill goes through Parliament as it stands I will not offer any resistance and may pay once, but it will only be once.

If we take the number of M.R.C.V.S. at 10/6 each it gives us £1,806 10s. 6d., which is quite sufficient to meet our requirements, and leaves £1,000 to invest—sufficient to put the R.C.V.S. on a firmer basis than at present.

"Vis Unita Fortior" asks me to tell him whether I am "for or against" the Bill. I am decidedly "against" it as it stands, for three reasons. It is unnecessary. Every clause calculated to benefit the profession has been dropped, and it would lead to extravagance. On the other hand I am equally in favour of the members paying 10/6 each annually, to secure which—whether by Act of Parliament or a voluntary payment, is immaterial.

I have given "Vis Unita Fortior" a straight answer to *his* question. May I ask him "to turn neither to the right nor left" in reply to mine, What do the Council intend to do with the amount that the guinea tax would produce?—Yours faithfully,

"HALF-A-GUINEA."

Communications for the Editor to be addressed 20 Fulham Road, London, S.W.